





November 2016 Wastewater – pH event data

WASTEWATER DATA:

Notes:

The following is a summary of events regarding effluent pH measurements taken at the discharge of the effluent tank, TNK-0025.

Measurements for pH were captured from sensor AT-0025, which measures pH at the discharge of TNK-0025.

Flow values were captured from FT-0020, which measures the rate of flow at the discharge of TNK-0025 to the city's sanitary system in Gallons-Per-Minute (GPM.)

Data values were retrieved from control software at 5 second and/or 1 second intervals capturing the previously stored value. Hourly average pH reported has been recalculated for improved accuracy and is not from the daily reports.

Measurements were captured in Excel/MiniTab worksheets and evaluated for correlation with regards to pH, flow, time of events, and pump speeds.

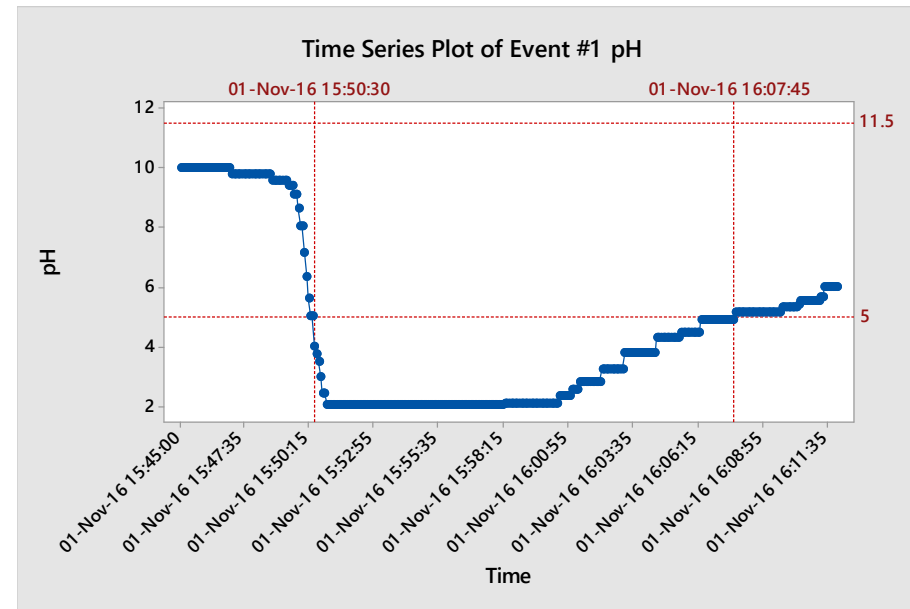
Each event in the following pages represents a period of time where the pH measured from TNK-0025 was either above 11.5 or below 5.0.

Events were filtered for “zero” flow. If flow was not > than 25 GPM, event time was not evaluated.

An event represents any instance or combination of instances where pH was above 11.5 or below 5.0 and flow was greater than 25gpm from midnight to midnight the following day.

If an event occurs, any instances or combination of instances that occur prior to 8:00am the following day are considered part of the initial event for the purposes of this report due to the first review opportunity of the daily effluent report occurring no earlier than 8:00 am the following day.

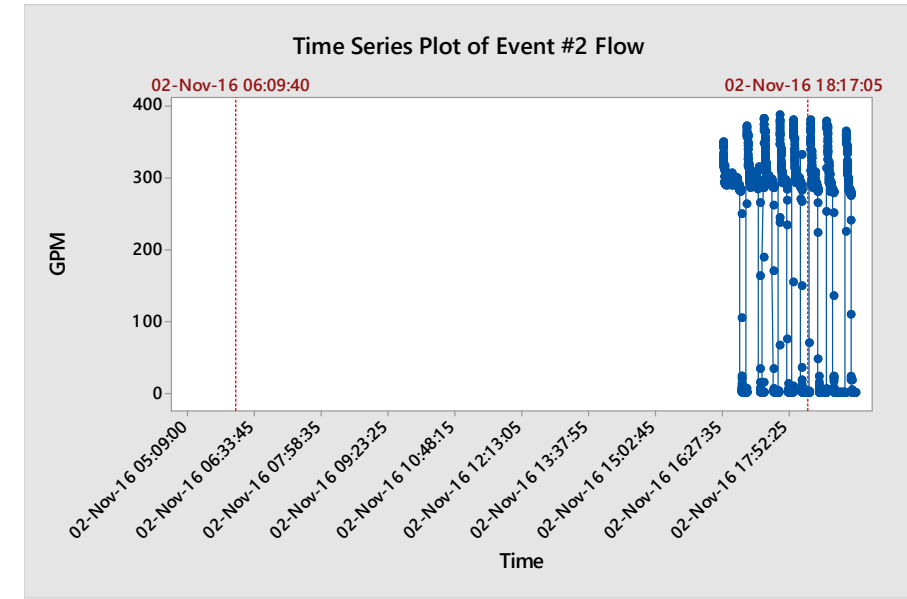
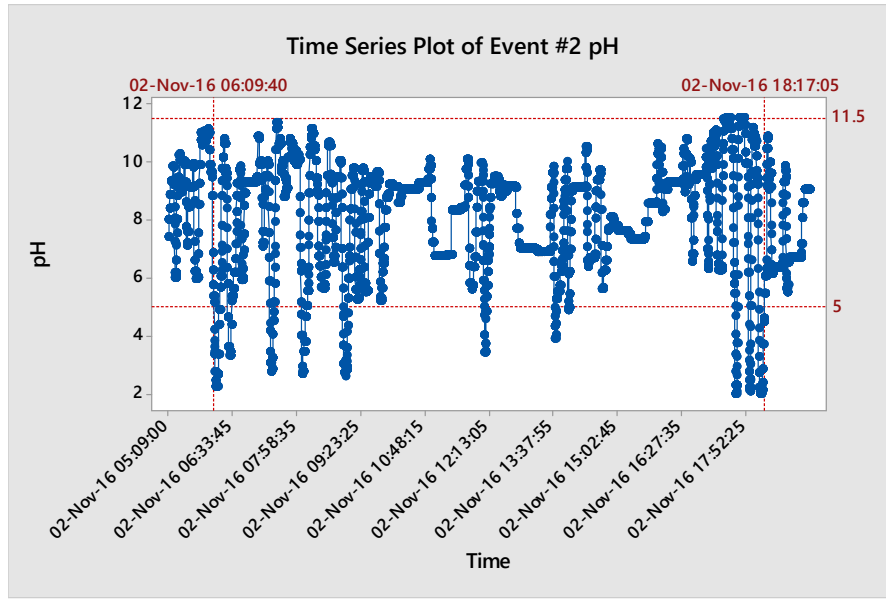
EVENT SUMMARY:



Event #1 – 11/1/16: Potential Event – A loss of flow data was experienced between the evening of 10/25 and the afternoon of 11/2. Without proof of flow or lack of flow to the city it is assumed that any pH excursion is an event during this time period and the last recorded flow of 468.25 GPM prior to this period is assumed.

Effluent was below 5.0pH for a total of 17.32 minutes out of 1440.00 minutes for the day. Average pH for the effluent for those hours involved were 7.27 and 6.04.

EVENT SUMMARY:

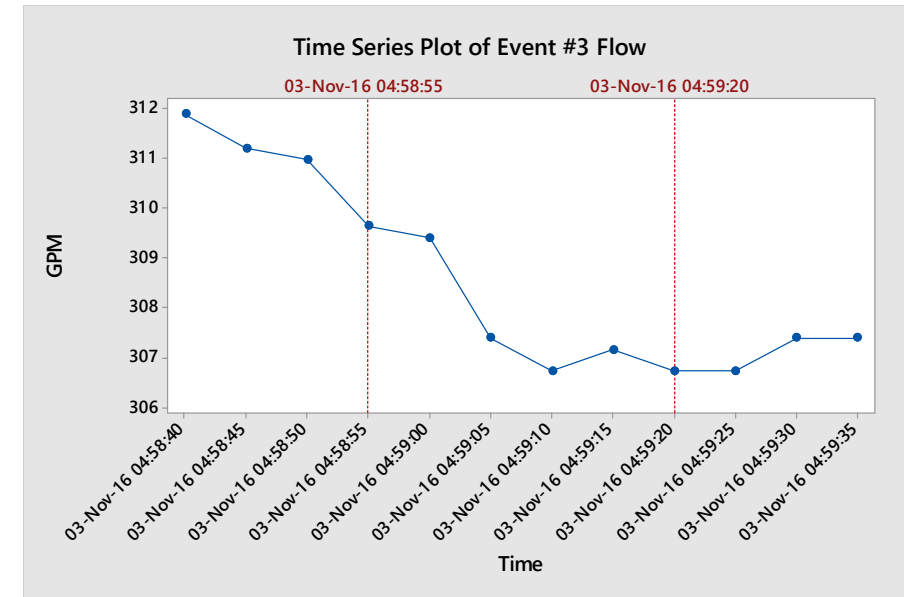
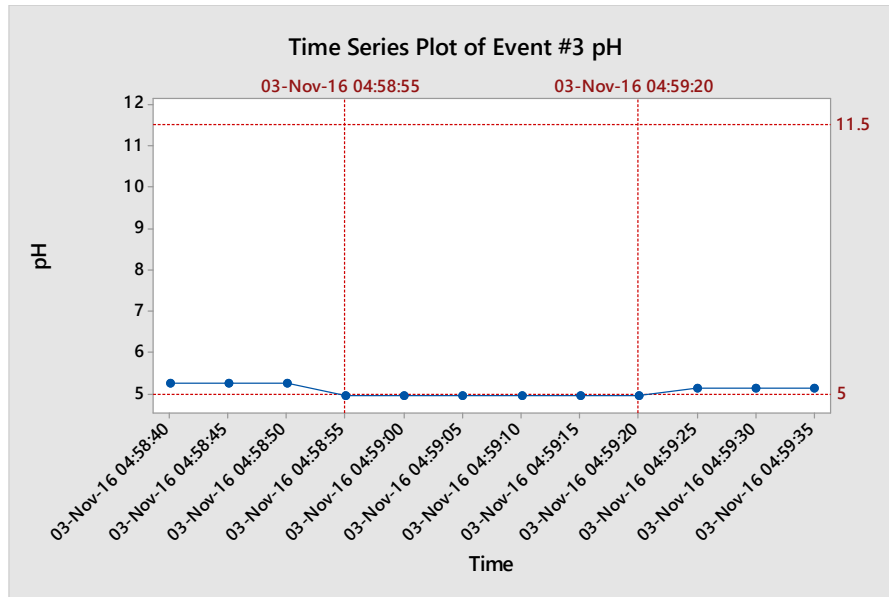


Event #2 – 11/2/16: Event – A loss of flow data was experienced between the evening of 10/25 and the afternoon of 11/2. Without proof of flow or lack of flow to the city it is assumed that any pH excursion is an event during this time period and the last recorded flow of 468.25 GPM prior to this period is assumed.

Effluent was below 5.0pH for a total of 36.35 minutes out of the 1020.00 minutes for 17 hours prior to the resumption of flow data. Average pH for the effluent for those hours involved were 7.41, 9.09, 7.86, 7.36, 8.31, and 7.04.

Effluent flowed to the city below 5.0pH for a total of 3.78 minutes out of 188.45 minutes of discharge after flow readings resumed. Flow weighted average pH for the effluent sent to the city for the hour involved was 9.52.

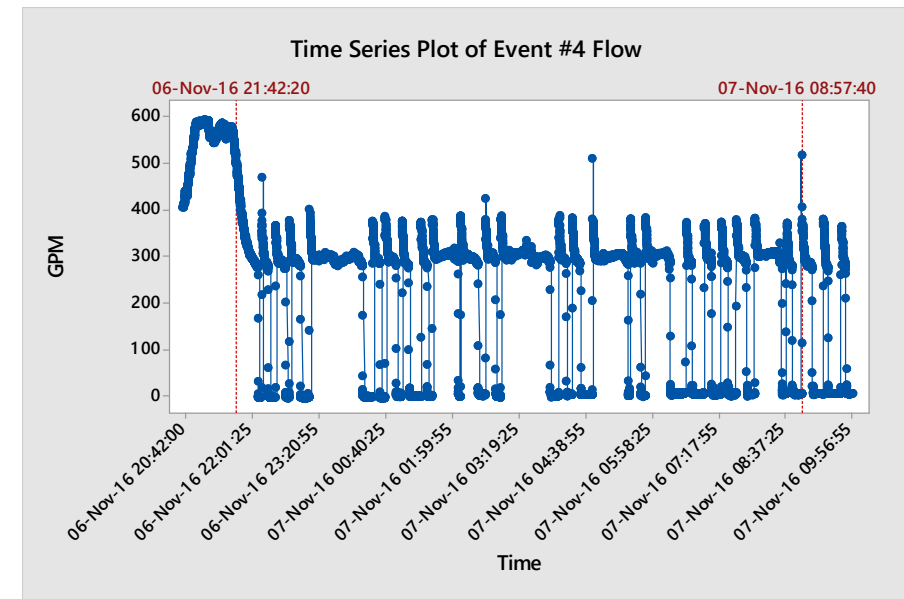
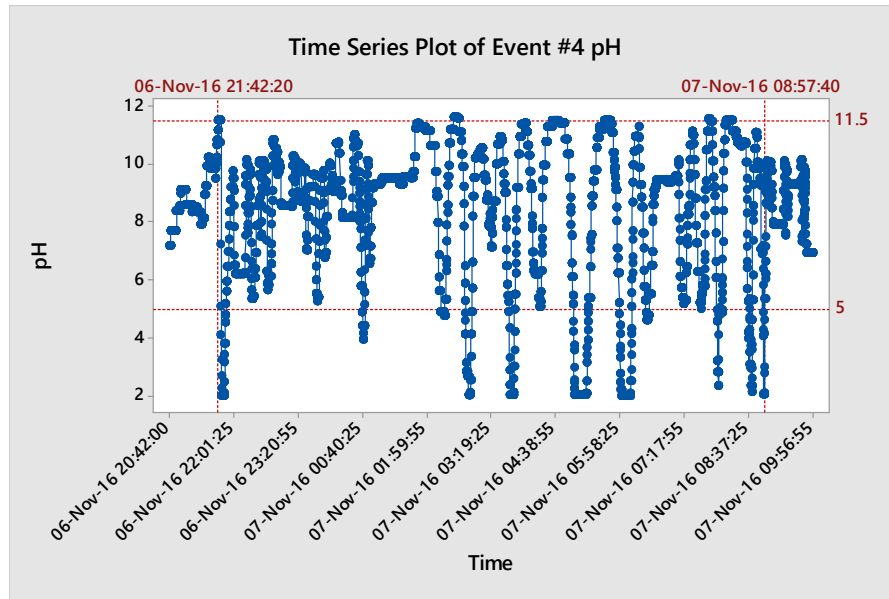
EVENT SUMMARY:



Event #3 – 11/3/16: Effluent flowed to the city below 5.0pH for a total of 0.5 minutes out of 1,189.92 minutes of discharge. Flow weighted average pH for the effluent sent to the city for the hour involved was 8.22. The flow weighted average pH for the effluent sent to the city for the day was 6.78.

One instance of flow to the city below 5.0pH reoccurred early morning 11/4 for 0.03 minutes. Flow weighted average for the effluent sent to the city for that hour was 6.64.

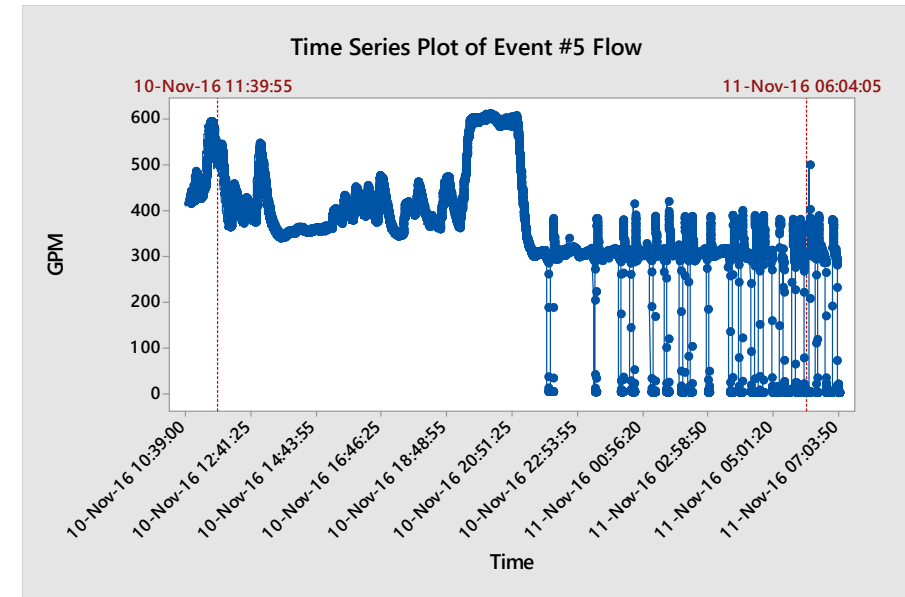
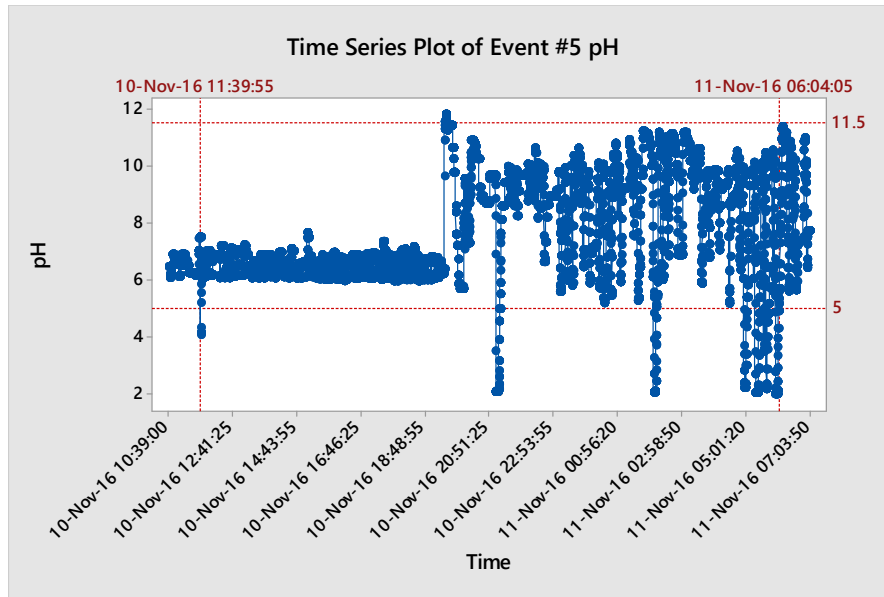
EVENT SUMMARY:



Event #4 – 11/6/16: Effluent flowed to the city below 5.0pH for a total of 5.57 minutes and above 11.5pH for a total of 3.20 minutes out of 1,423.63 minutes of discharge. Flow weighted average pH for the effluent sent to the city for the hour involved was 8.55. The flow weighted average pH for the effluent sent to the city for the day was 6.79.

The event carried over through the morning 11/7 with flow to the city below 5.0pH for a total of 62.00 minutes and above 11.5pH for a total of 16.55 minutes. Flow weighted average pH for the effluent sent to the city for those hours were 9.25, 8.01, 8.55, 6.69, 6.10, 9.21, and 9.06.

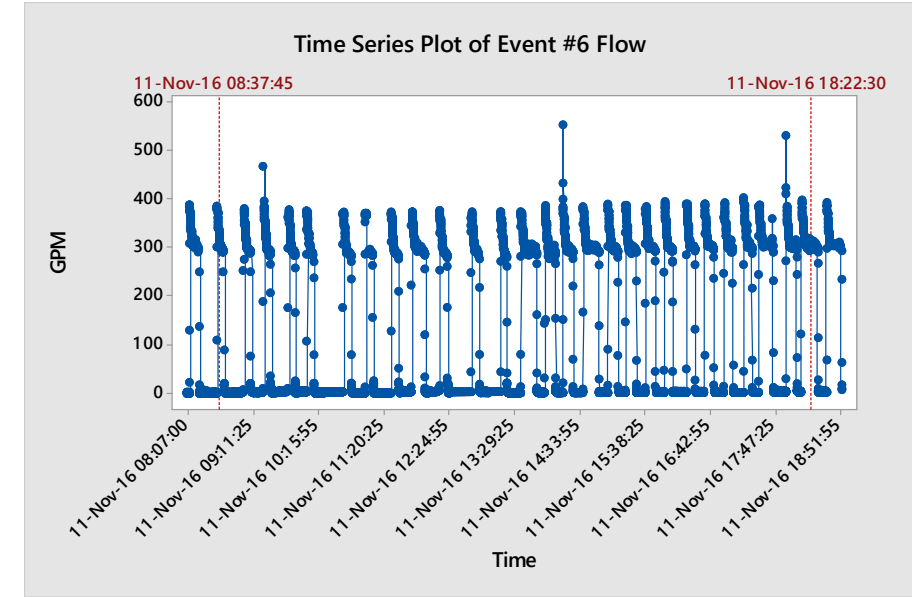
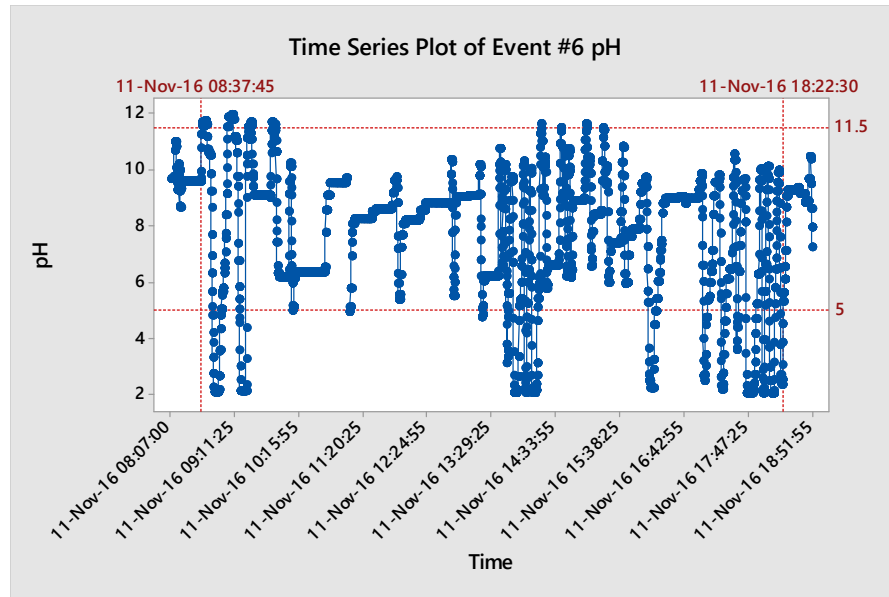
EVENT SUMMARY:



Event #5 – 11/10/16: Events 5 & 6 were continuous through 2 days. Event 5 period starts 12:00am on 11/10 and ends 8:00am on 11/11.

Effluent flowed to the city below 5.0pH for a total of 11.95 minutes and above 11.5pH for a total of 7.10 minutes out of 1,763.77 minutes of discharge. Flow weighted average pH for the effluent sent to the city for those hours involved were 6.42, 8.23, 7.86, 8.79, 7.80, and 10.32.

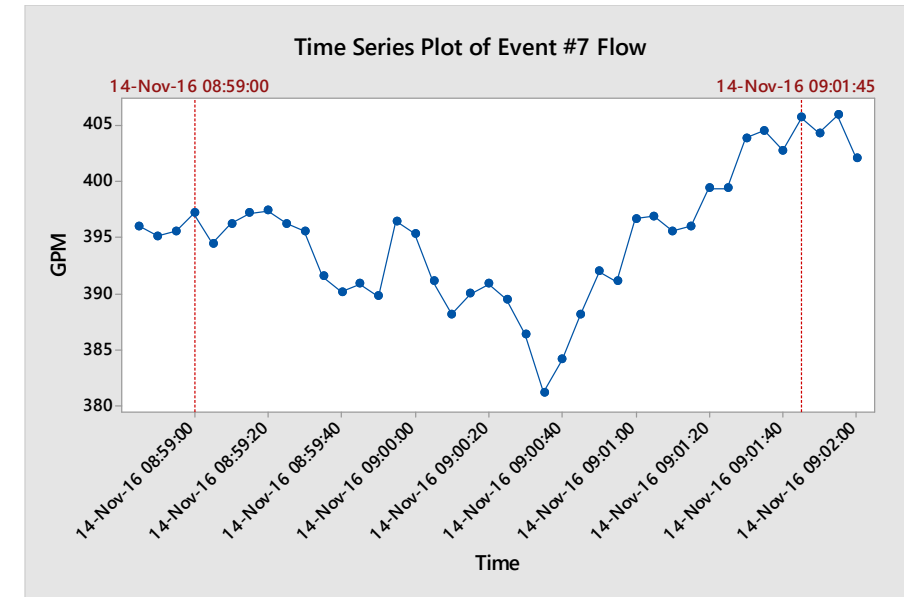
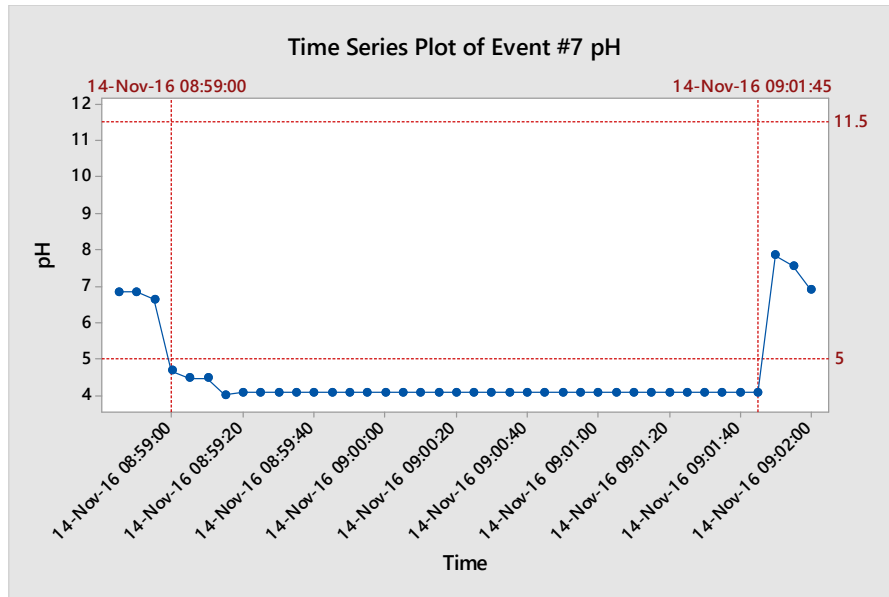
EVENT SUMMARY:



Event #6 – 11/11/16: Events 5 & 6 were continuous through 2 days. Event 6 period starts 9:00am on 11/11 and ends 12:00am on 11/12.

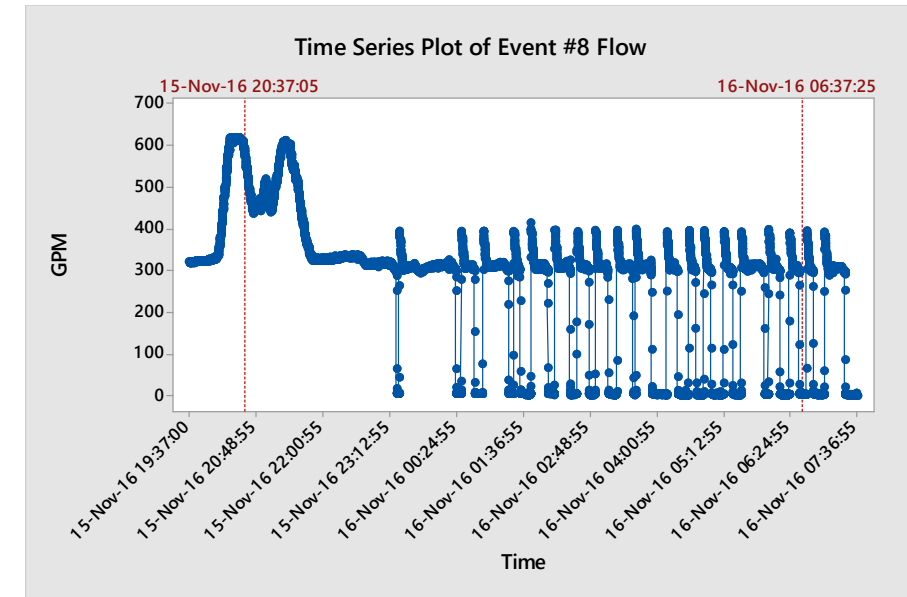
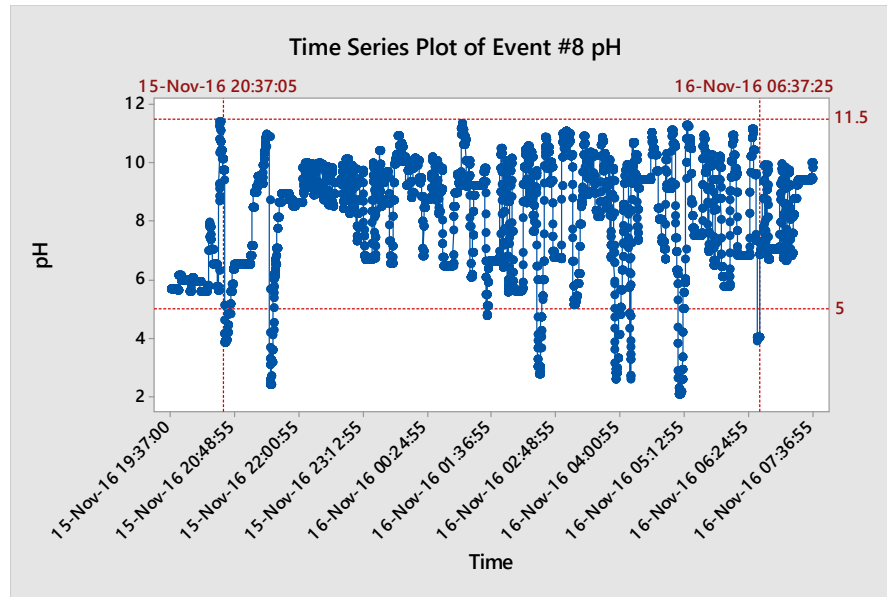
Effluent flowed to the city below 5.0pH for a total of 23.02 minutes and above 11.5pH for a total of 9.25 minutes out of 398.78 minutes of discharge. Flow weighted average pH for the effluent sent to the city for those hours involved were 10.80, 7.85, 8.03, 7.84, 8.36, 8.74, 7.09, and 7.33.

EVENT SUMMARY:



Event #7 – 11/14/16: Effluent flowed to the city below 5.0pH for a total of 2.83 minutes out of 1,440.00 minutes of discharge. Flow weighted average pH for the effluent sent to the city for those hours involved were 6.01 and 5.87. The flow weighted average pH for the effluent sent to the city for the day was 6.02.

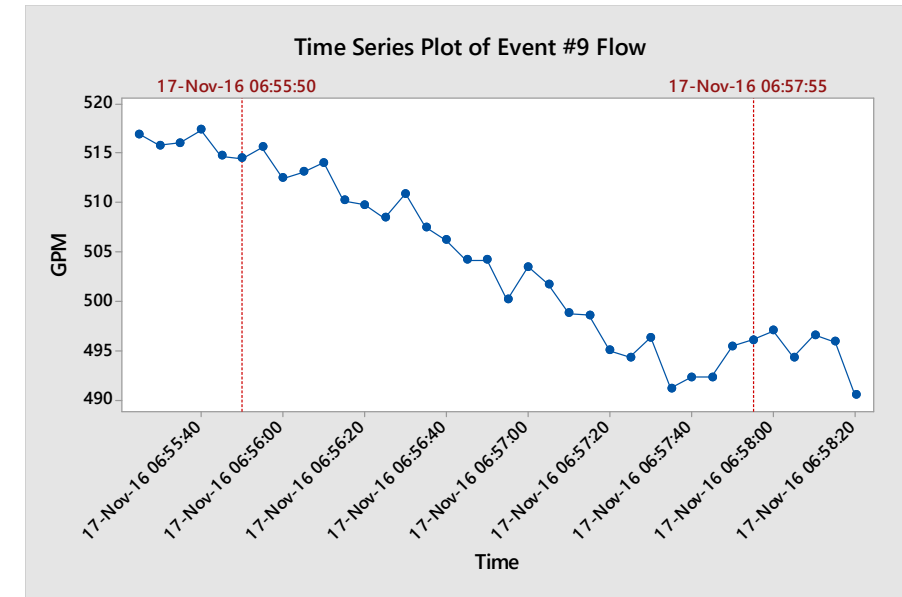
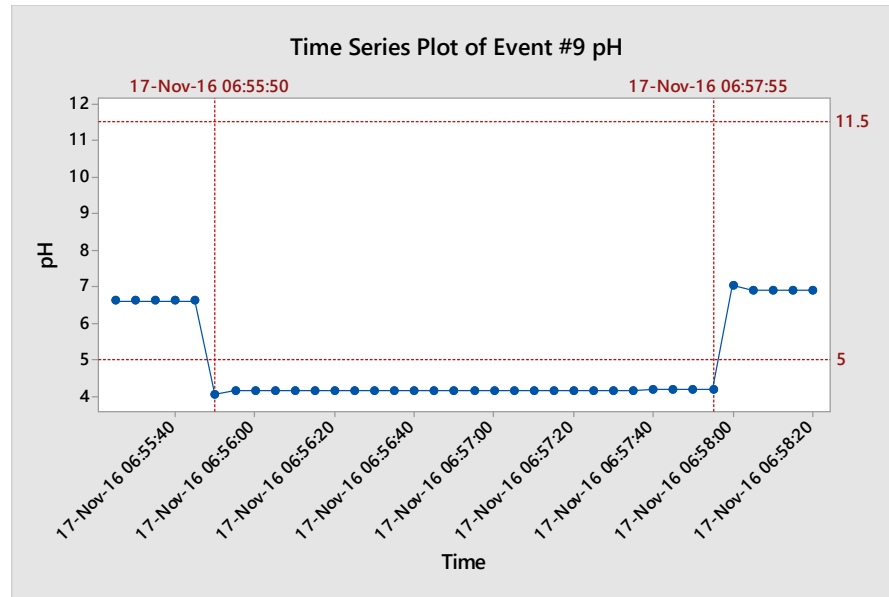
EVENT SUMMARY:



Event #8 – 11/15/16: Effluent flowed to the city below 5.0pH for a total of 10.43 minutes out of 1427.42 minutes of discharge. Flow weighted average pH for the effluent sent to the city for those hours involved were 6.49 and 8.15. The flow weighted average pH for the effluent sent to the city for the day was 6.40.

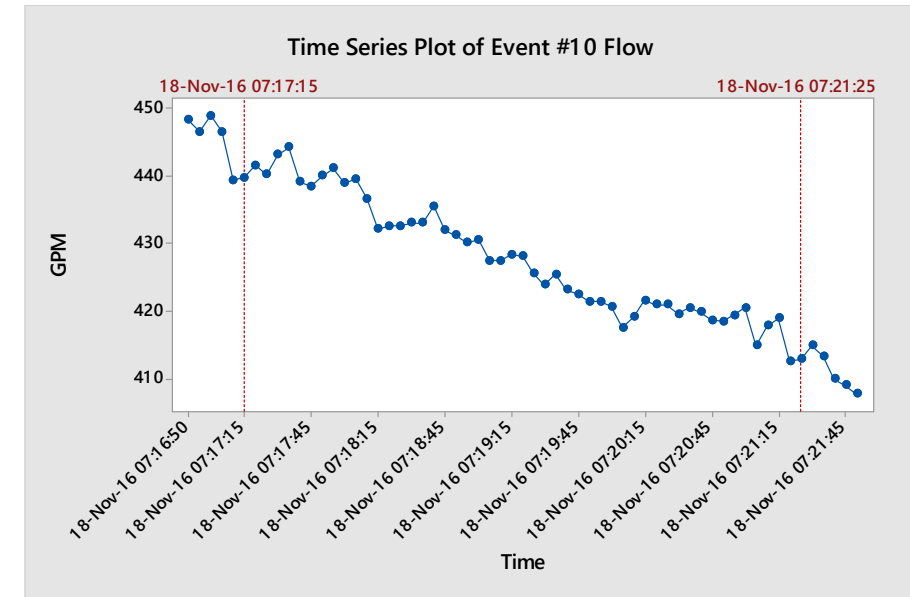
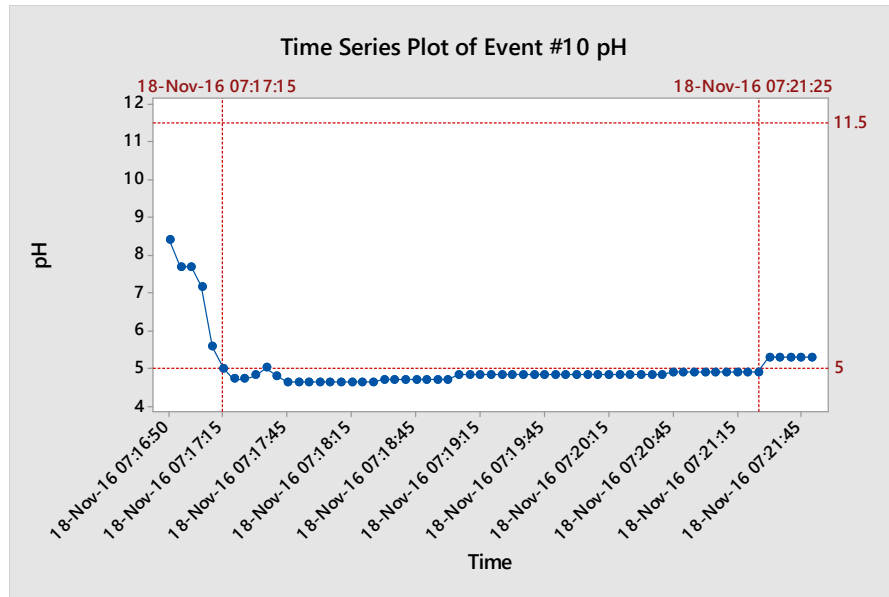
The event carried over through the morning 11/16 with flow to the city below 5.0pH for a total of 2.98 minutes. Flow weighted average pH for the effluent sent to the city for those hours were 8.66, 9.53, 9.33, and 8.58.

EVENT SUMMARY:



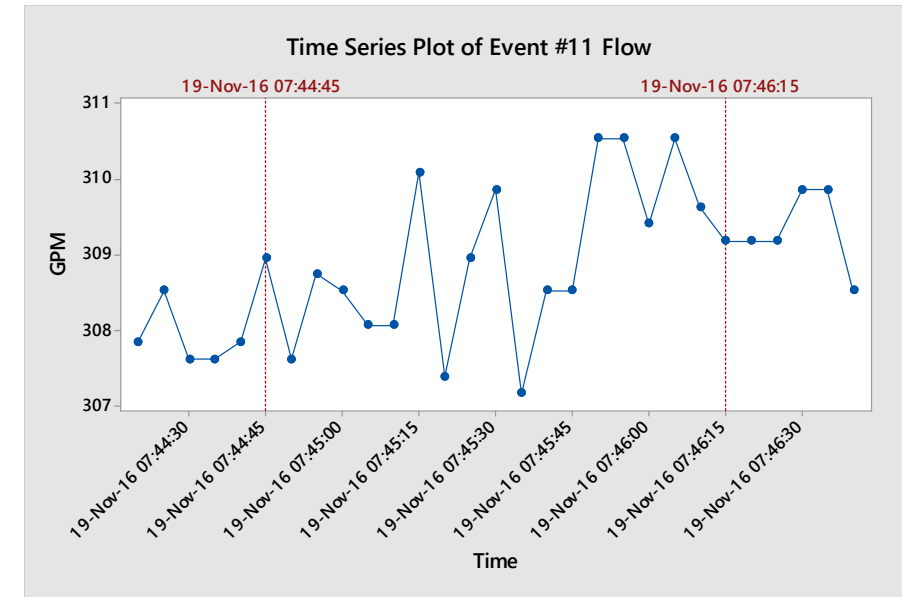
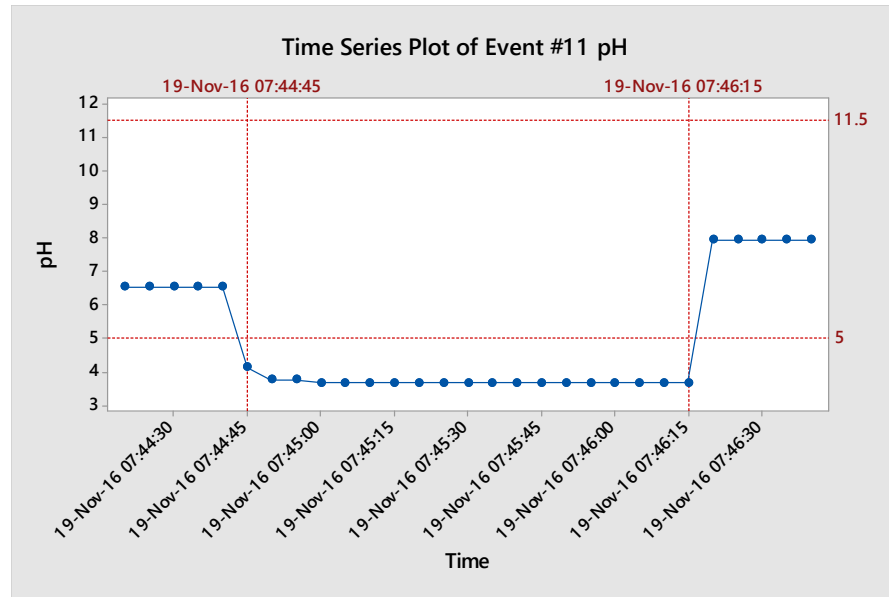
Event #9 – 11/17/16: Effluent flowed to the city below 5.0pH for a total of 2.17 minutes out of 1,440.00 minutes of discharge. Flow weighted average pH for the effluent sent to the city for the hour involved was 5.71. The flow weighted average pH for the effluent sent to the city for the day was 6.72.

EVENT SUMMARY:



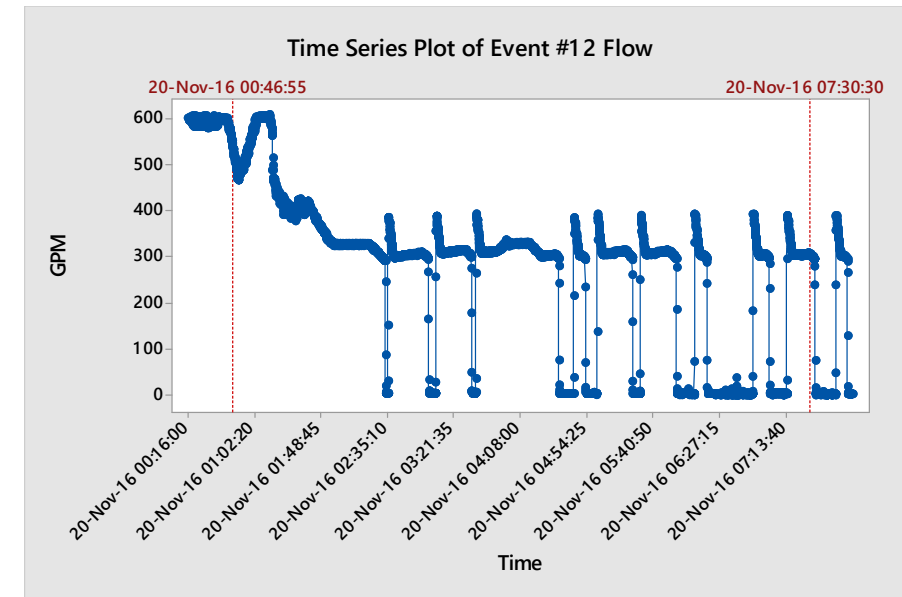
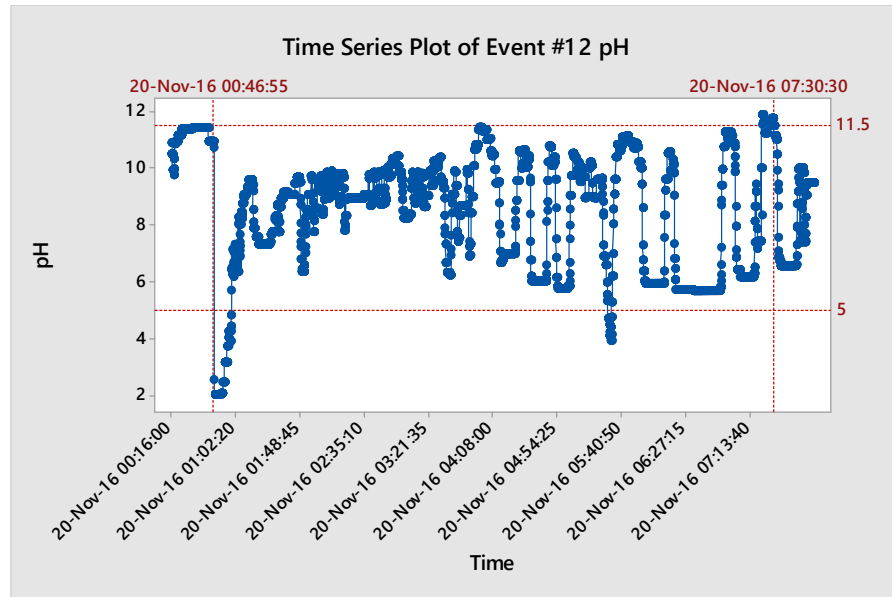
Event #10 – 11/18/16: Effluent flowed to the city below 5.0pH for a total of 4.28 minutes out of 1,440.00 minutes of discharge. Flow weighted average pH for the effluent sent to the city for the hour involved was 6.21. The flow weighted average pH for the effluent sent to the city for the day was 6.36.

EVENT SUMMARY:



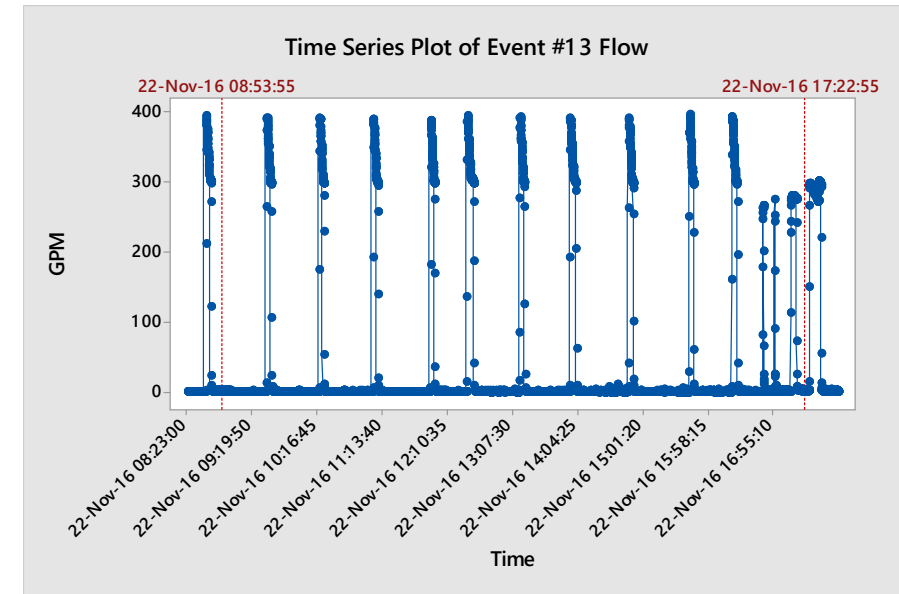
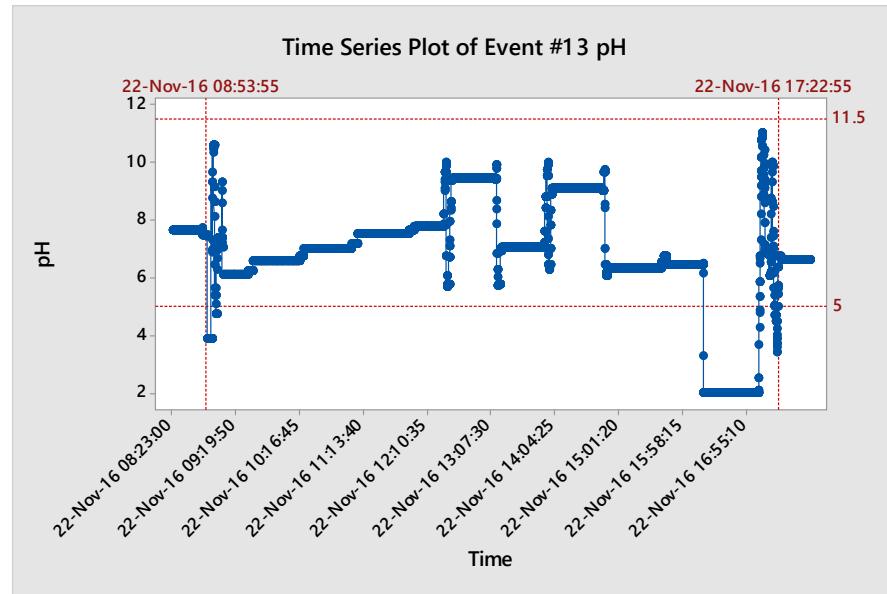
Event #11 – 11/19/16: Effluent flowed to the city below 5.0pH for a total of 1.53 minutes out of 1,430.23 minutes of discharge. Flow weighted average pH for the effluent sent to the city for the hour involved was 6.17. The flow weighted average pH for the effluent sent to the city for the day was 6.03.

EVENT SUMMARY:



Event #12 – 11/20/16: Effluent flowed to the city below 5.0pH for a total of 14.48 minutes and above 11.5pH for a total of 6.57 minutes out of 649.77 minutes of discharge. Flow weighted average pH for the effluent sent to the city for those hours involved were 8.34, 9.48, and 9.59. The flow weighted average pH for the effluent sent to the city for the day was 8.91.

EVENT SUMMARY:



Event #13 – 11/22/16: Effluent flowed to the city below 5.0pH for a total of 6.63 minutes out of 170.70 minutes of discharge. Flow weighted average pH for the effluent sent to the city for the hour involved was 2.00 (This was the only flow for the hour). The flow weighted average pH for the effluent sent to the city for the day was 7.08.

The primary issue for this event was very low flow through the system and the over correction of the HCl addition due to the low flow.



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